$(L)_nM(X)_m$

wherein M is a Group 3-10 metal, L is a bulky ancillary anionic polymerization-stable carbocyclic, heterocyclic or constraint-inducing ligand, X is selected from the group consisting of halogen, C_{1-20} alkoxy, C_{6-20} aryloxy or alkyl- or aryl-substituted amido, n is 1 to 4, m is 1 to 4 and n+m is equal to the valence of the metal; and

A2

(b) introducing the precatalyst into a polymerization system and forming an alkylated cationic transition metal catalyst by contacting the precatalyst with an organometallic alkylating agent, wherein the precatalyst and organometallic alkylating agent are contacted in the presence of one or more C_{2-12} α-olefin monomers.---

-- **37.** The process of Claim **36** wherein the contact of the precatalyst and organometallic alkylating agent is carried out under polymerization conditions.---

-- **38.** The process of Claim **36** wherein the molar ratio of boron to transition metal in step (a) is from 0.1:1 to 10:1 and the molar ratio of alkylating agent metal to transition metal in step (b) is from 1:1 to 1000:1.---

-- **39.** The process of Claim **36** wherein the boron-containing ionizing agent and the neutral transition metal complex are contacted in an inert hydrocarbon medium.---

-- **40.** The process of Claim **36** wherein the boron-containing ionizing agent is a trialkyl borane, triaryl borane or ionic organoborate compound.---

-- **41.** The process of Claim **40** wherein M is a Group 4-6 transition metal.---

-- **42.** The process of Claim **41** wherein the neutral transition metal complex has the formula

$(L^*)(L)_xM(X)_y$

wherein M, L and X are the same as defined above, L* is a bulky ancillary anionic-polymerization-stable-heterocyclic-ligand-selected-from-the-group-consisting-of boraaryl, pyrrolyl, azaboralinyl, quinolinyl, and pyridinyl, x is 1 to 3, y is 1 to 3, x + y is equal to the valence of the metal minus one, and X is halogen.---

-- **43.** The process of Claim **36** wherein the organometallic alkylating agent is a

Group 2, 12, or 13 metal compound containing at least 1 alkyl group having from 1 to 8 carbon atoms.---

-- **44.** The process of Claim **43** wherein the organometallic alkylating agent is selected from the group consisting of dialkyl zincs, dialkyl magnesiums, alkyl magnesium halides, alkyl aluminum dihalides, dialkyl aluminum halides, and trialkyl aluminums.---

-- **45.** A process for the in-situ preparation of a supported single-site transition metal olefin polymerization catalyst which comprises:

(a) combining (1) a neutral transition metal complex having the formula:

$$(L)_nM(X)_m$$

wherein M is a Group 3-10 metal, L is a bulky ancillary anionic polymerization-stable carbocyclic, heterocyclic or constraint-inducing ligand, X is selected from the group consisting of halogen, C_{1-20} alkoxy, C_{6-20} aryloxy or alkyl- or aryl-substituted amido, n is 1 to 4, m is 1 to 4 and n+m is equal to the valence of the metal; (2) a boron-containing ionizing agent; (3) a support material; and (4) an inert hydrocarbon;

(b) removing all or a portion of the inert hydrocarbon to obtain a supported transition metal precatalyst; and

(c) introducing the supported transition metal precatalyst into a polymerization system and contacting the supported precatalyst with an organometallic alkylating agent to form a supported cationic transition metal catalyst, wherein the supported precatalyst and organometallic alkylating agent are contacted in the presence of one or more C_{2-12} α-olefin monomers.---

-- **46.** The process of Claim **45** wherein the contact of the supported precatalyst and organometallic alkylating agent is carried out under polymerization conditions.---

-- **47.** The process of Claim **45** wherein the support material is an inorganic oxide, inorganic silicate, inorganic chloride, or organic polymer resin.---

-- **48.** The process of Claim **47** wherein the support material is an inorganic oxide selected from the group consisting of silica, alumina, silica-alumina, magnesia, titania, and zirconia.---

-- **49.** The process of Claim **48** wherein the inorganic oxide support is pretreated to remove all or a portion of the hydroxyl functionality present on the surface of the support.---

-- **50.** The process of Claim **49** wherein the pretreatment is accomplished by thermal, chemical, or a combination of thermal and chemical means.---

-- **51.** The process of Claim **50** wherein the thermal pretreatment is carried out by heating at 150°C to 800°C.---

-- **52.** The process of Claim **50** wherein the chemical pretreatment is carried out by contacting the inorganic oxide support with a modifier selected from the group consisting of alumoxanes, alkyl aluminums, alkyl aluminum halides, alkyl aluminum hydrides, alkylsilyl halides, alkyldisilazanes, alkyl and aryl alkoxysilanes, and alkyl, aryl, and alkoxy boron compounds.---

-- **53.** The process of Claim **50** wherein substantially all surface hydroxyl functional groups are removed.---

-- **54.** The process of Claim **45** wherein the boron-containing ionizing agent is a trialkyl borane, triaryl borane or ionic organoborate compound.---

-- **55.** The process of Claim **45** wherein M is a Group 4-6 transition metal.---

-- **56.** The process of Claim **45** wherein the organometallic alkylating agent is a Group 2, 12, or 13 metal compound containing at least 1 alkyl group having from 1 to 8 carbon atoms.---

-- **57.** The process of Claim **56** wherein the organometallic alkylating agent is selected from the group consisting of dialkyl zincs, dialkyl magnesiums, alkyl magnesium halides, alkyl aluminum dihalides, dialkyl aluminum halides, and trialkyl aluminums.---